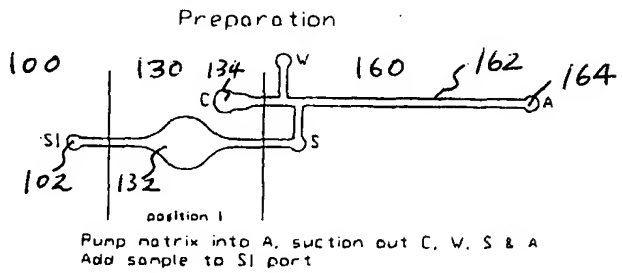
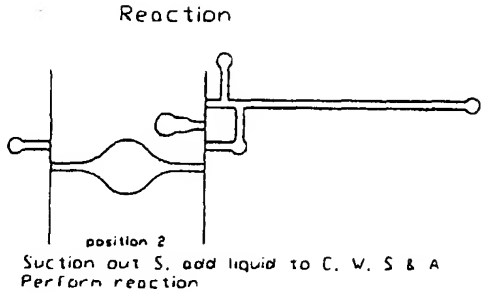
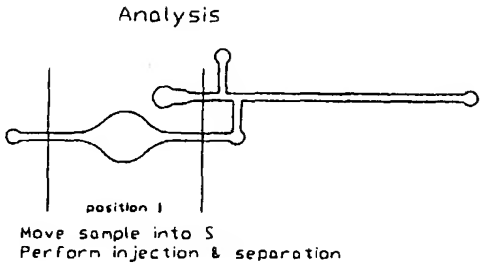

Preparation
100
130
134
W
160
162
164
C
A
SI
S
102
132
position 1
Pump matrix into A, suction out C, W, S & A
Add sample to SI port


Reaction
position 2
Suction out S, add liquid to C, W, S & A
Perform reaction


Analysis
position 1
Move sample into S
Perform injection & separation

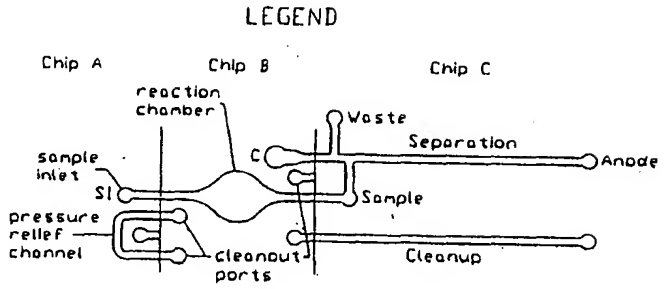

LEGEND
Chip A
Chip B
Chip C
reaction chamber
Waste
Separation
Anode
sample inlet
C
SI
Sample
pressure relief channel
cleanout ports
Cleanup

FIGURE 1

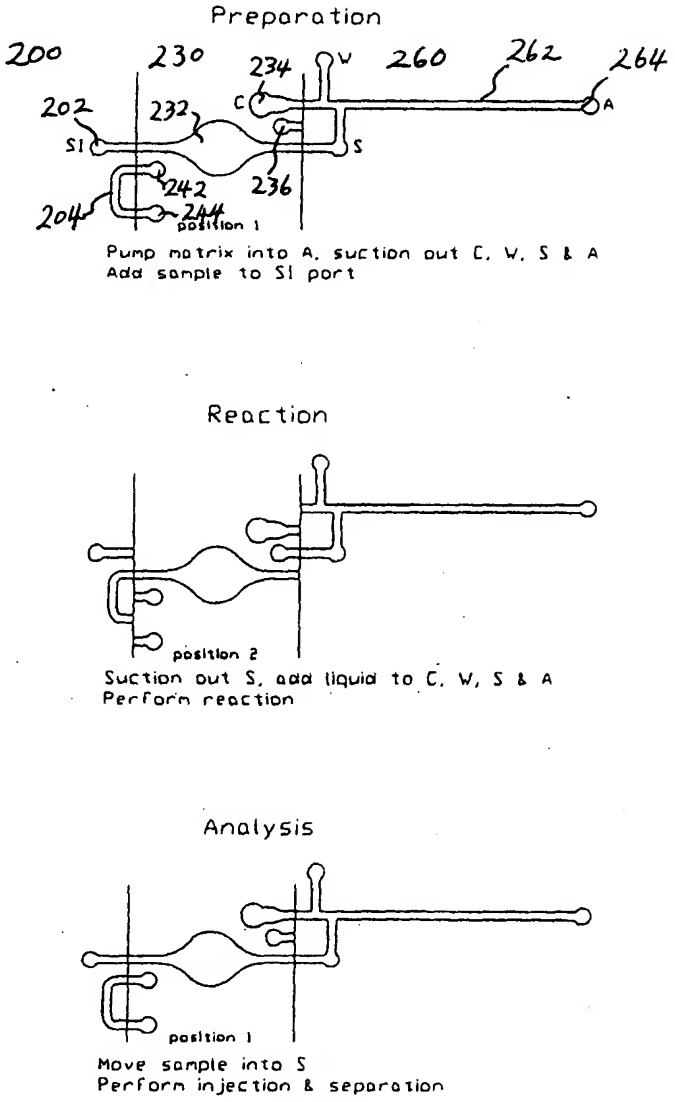

Preparation
200
230
234
V
260
262
264
202
232
C
A
S1
S
242
236
204
244
position 1
Pump matrix into A, suction out C, W, S & A
Add sample to S1 port
Reaction
position 2
Suction out S, add liquid to C, W, S & A
Perform reaction
Analysis
position 1
Move sample into S
Perform injection & separation
LEGEND
Chip A
Chip B
Chip C
reaction chamber
Waste
Separation
sample inlet
C
Anode
S1
Sample
pressure relief channel
cleanout ports
Cleanup

FIGURE 2

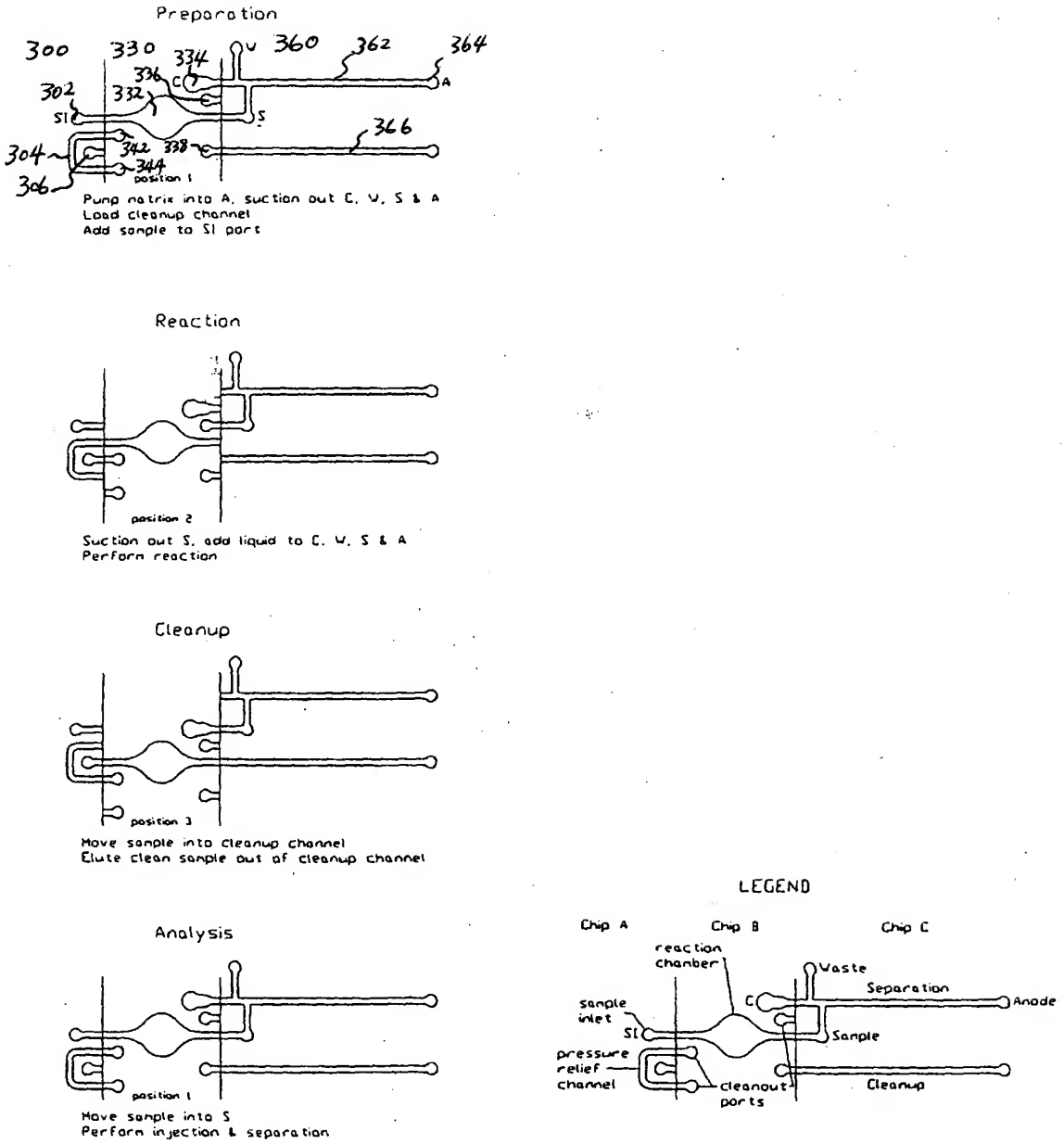

Preparation
300
330
334
V
360
362
364
336
C
A
302
332
SI
S
366
304
342
338
344
306
position 1
Pump matrix into A, suction out C, V, S & A
Load cleanup channel
Add sample to SI port
Reaction
position 2
Suction out S, add liquid to C, V, S & A
Perform reaction
Cleanup
position 3
Move sample into cleanup channel
Elute clean sample out of cleanup channel
Analysis
position 1
Move sample into S
Perform injection & separation
LEGEND
Chip A
Chip B
Chip C
reaction chamber
Waste
Separation
Anode
C
sample inlet
SI
Sample
pressure relief channel
cleanout ports
Cleanup

FIGURE 3

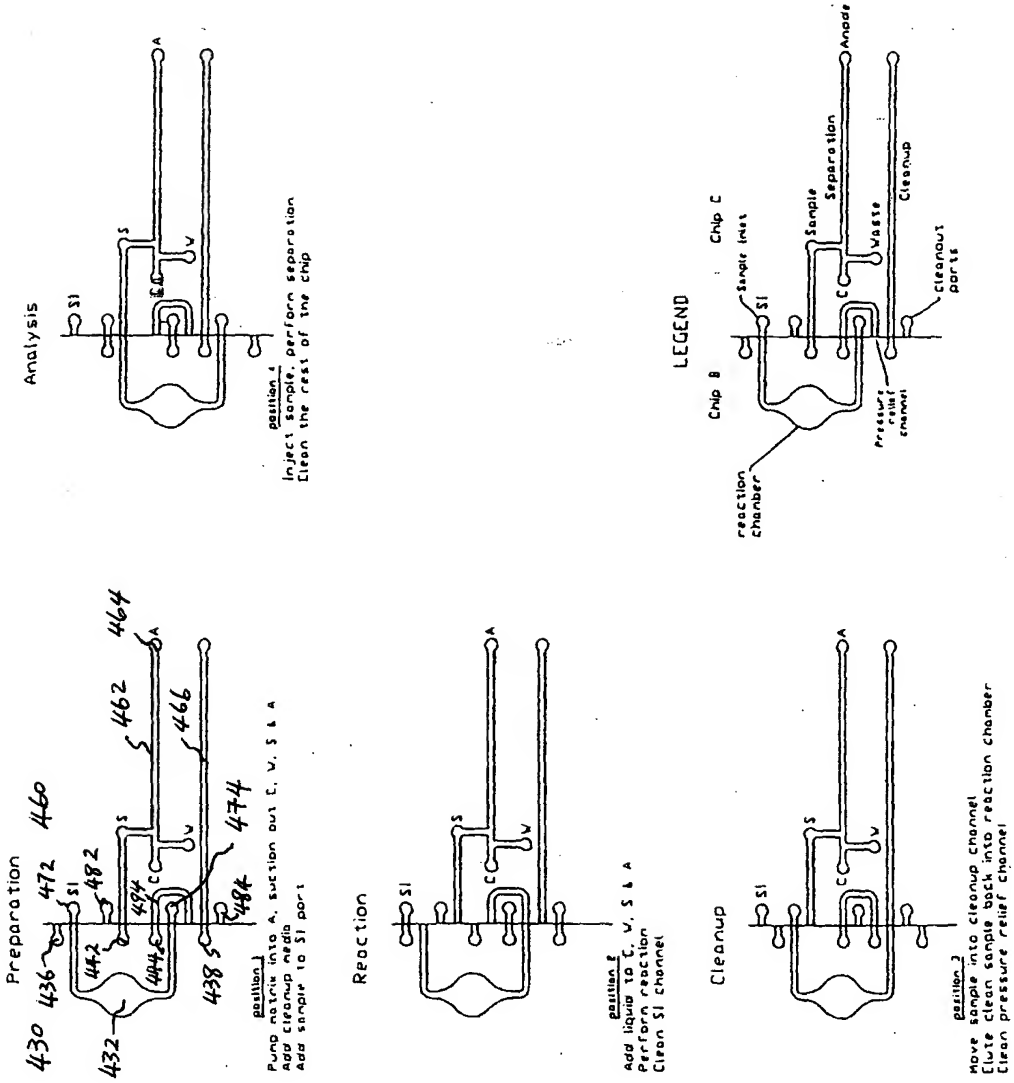

Preparation
Analysis
Reaction
Cleanup
LEGEND
Chip B
Chip C
Sample inlet
Separation
Waste
Cleanout ports
Pressure relief channel
reaction chamber
Anode
Cleanup
Pump matrix into A, suction out C, V, S & A
Add cleanup media
Add sample to SI port
Inject sample, perform separation
Clean the rest of the chip
Add liquid to C, V, S & A
Perform reaction
Clean SI channel
Move sample into cleanup channel
Elute clean sample back into reaction chamber
Clean pressure relief channel

FIGURE 4

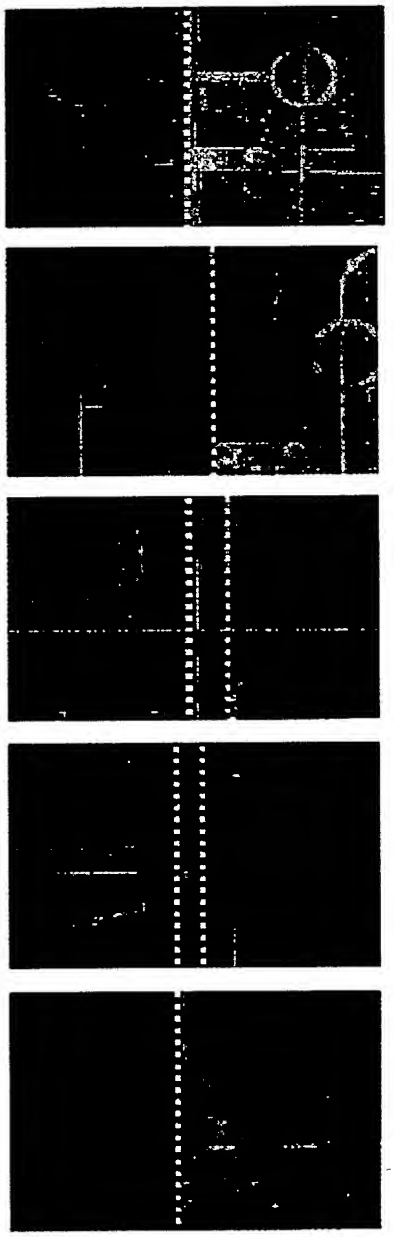


FIGURE 5

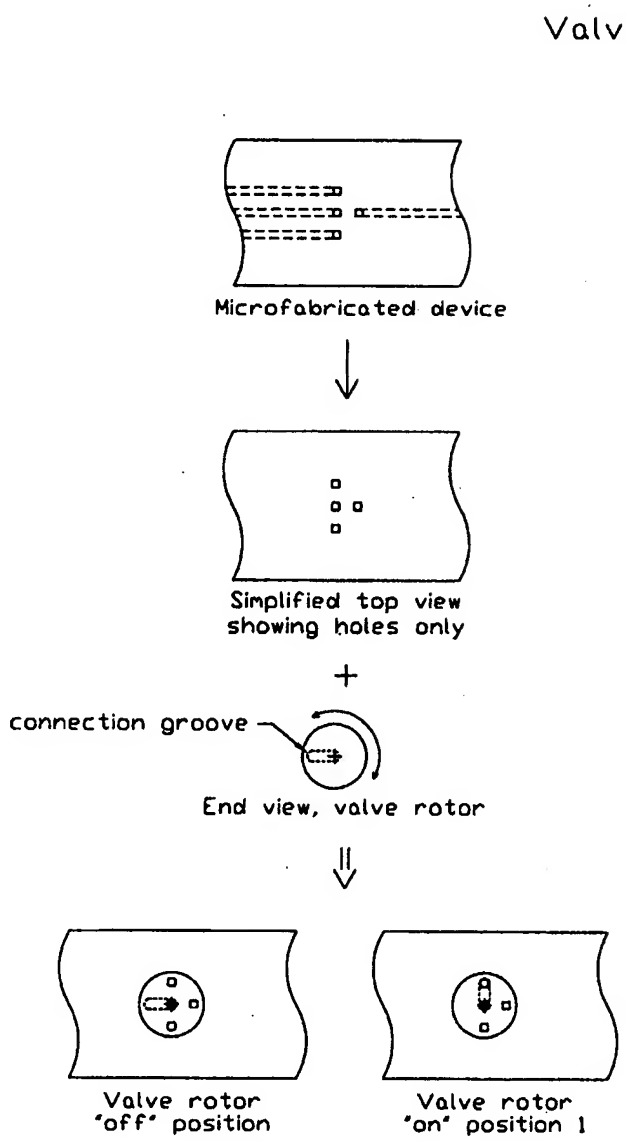


FIGURE 6A

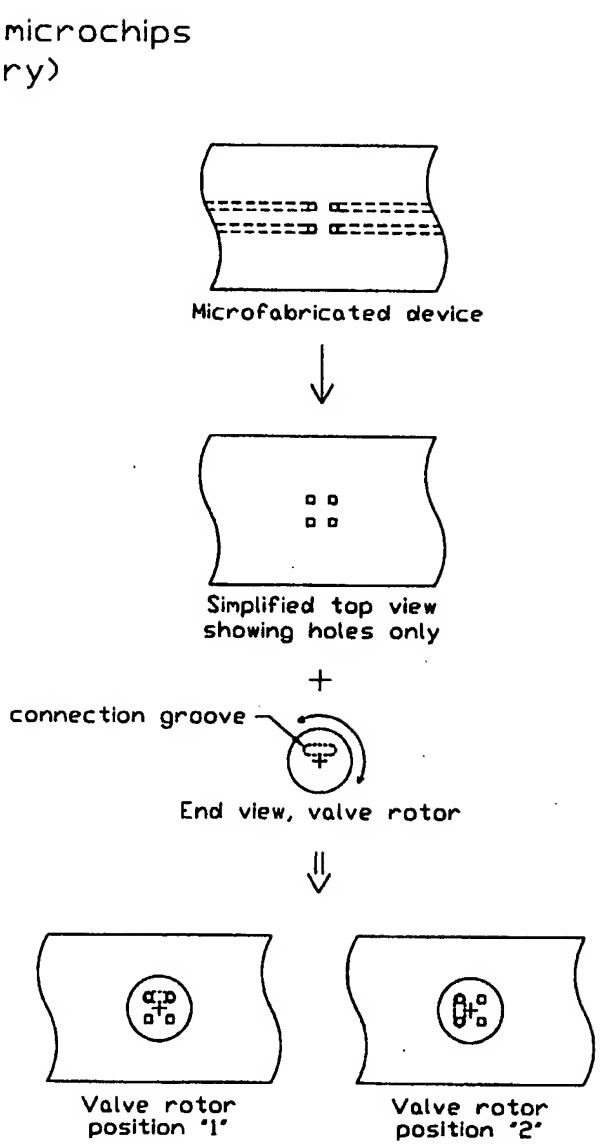


FIGURE 6B

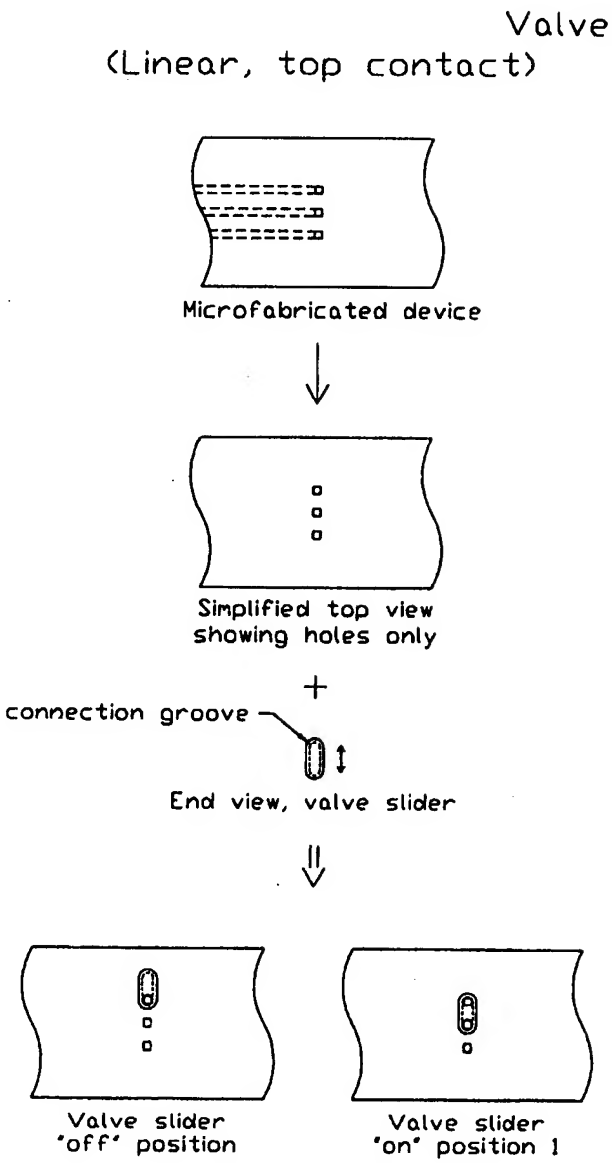


FIGURE 6C

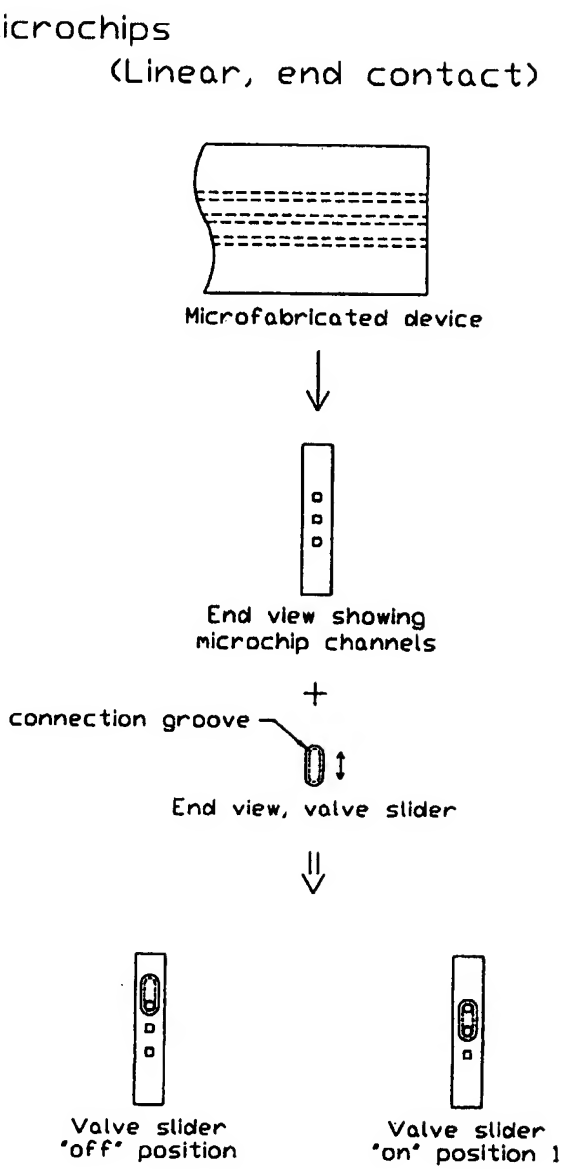


FIGURE 6D

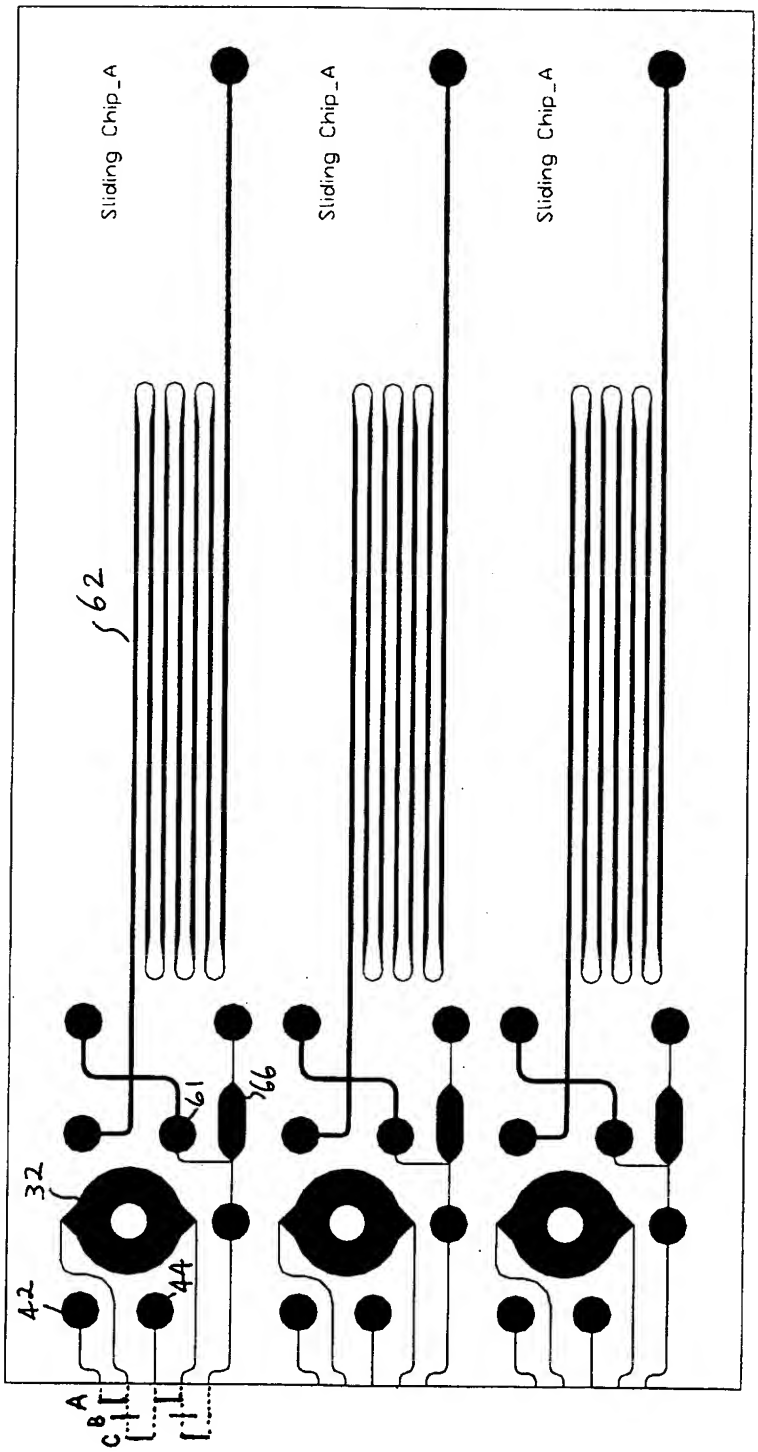

Sliding Chip_A
Sliding Chip_A
Sliding Chip_A
62
61
66
32
42
44
A
B
C

FIGURE 7A

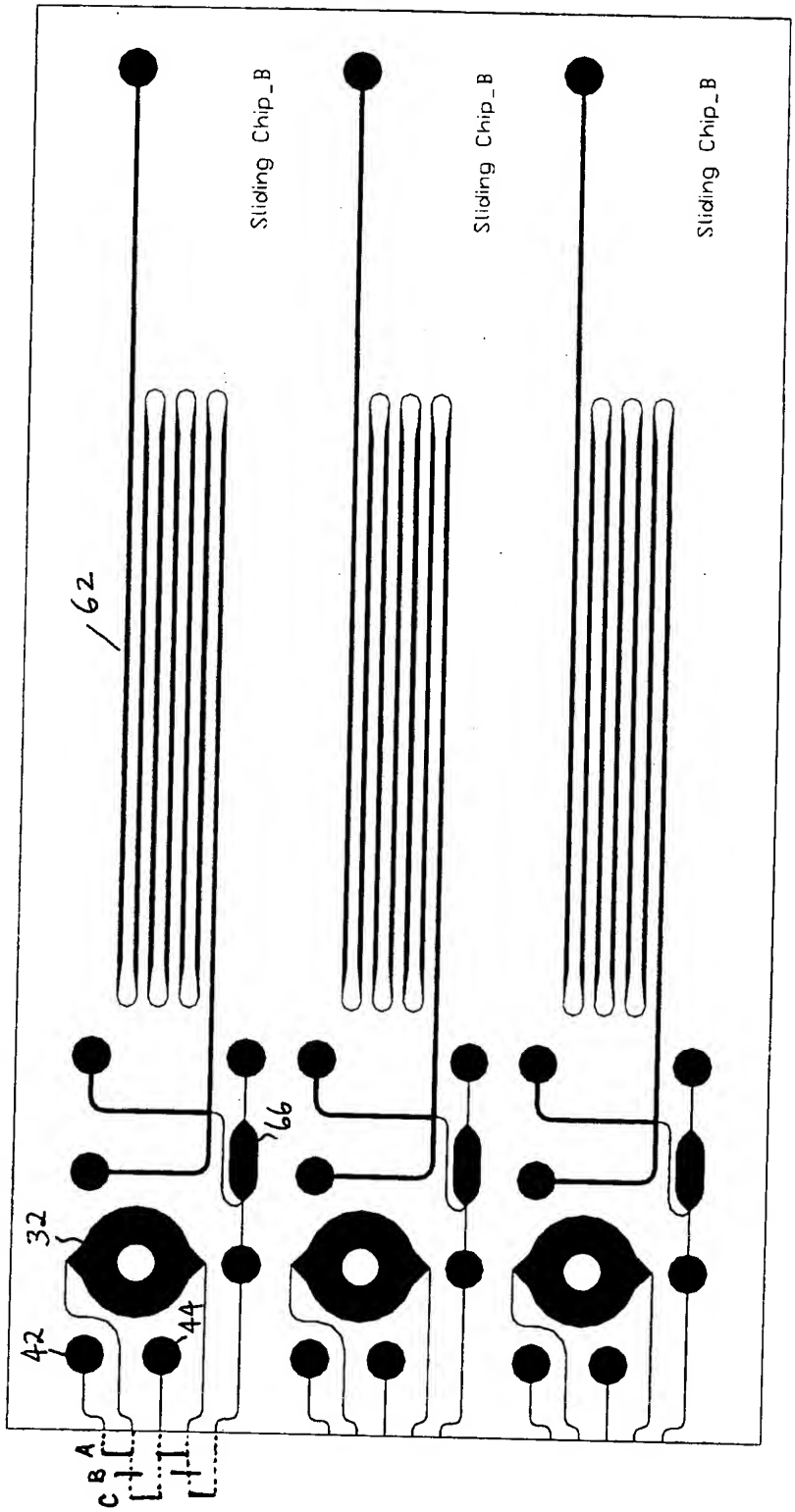


FIGURE 7B

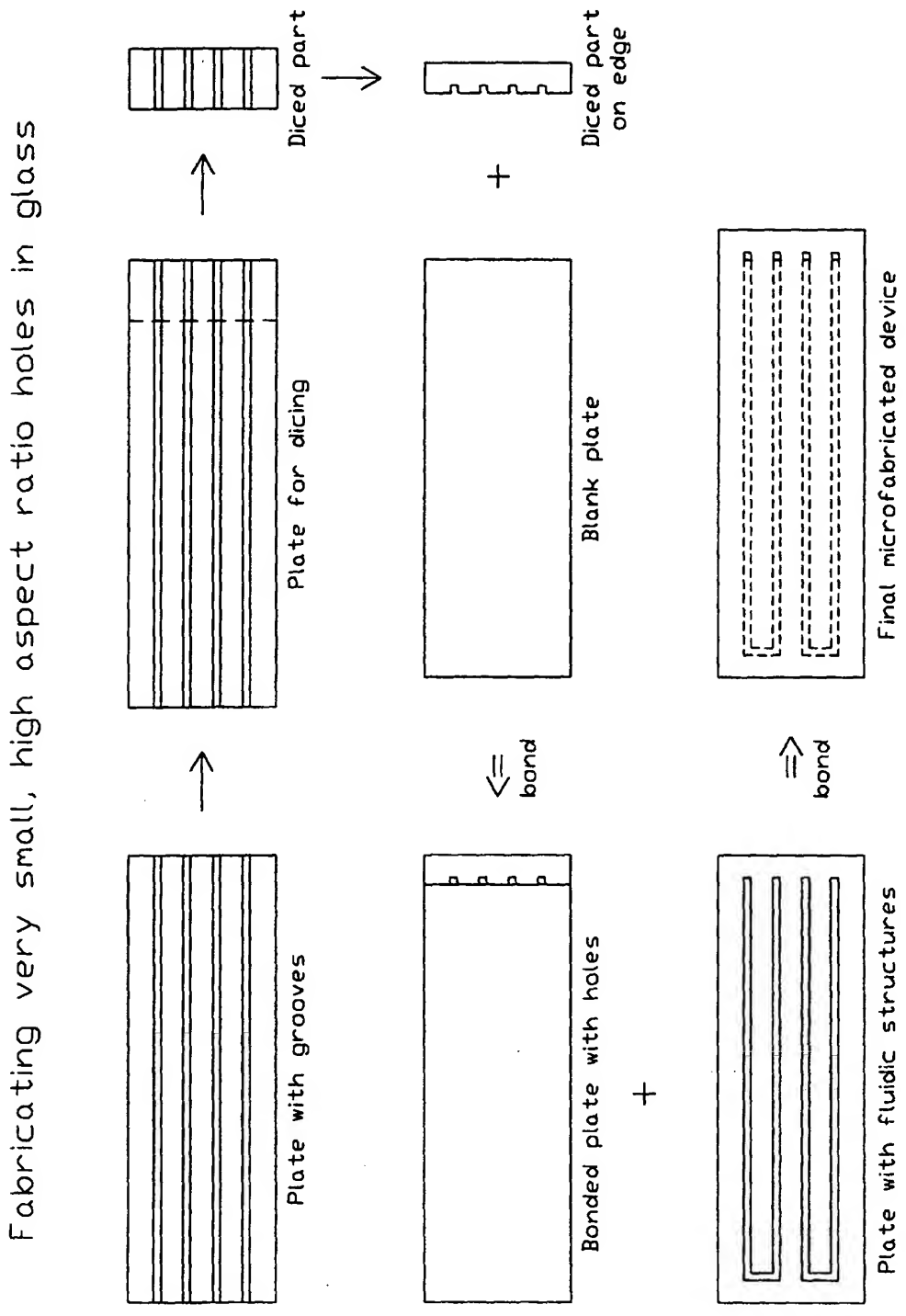

Fabricating very small, high aspect ratio holes in glass
Diced part
Diced part on edge
Plate for dicing
Blank plate
Final microfabricated device
bond
bond
Plate with grooves
Bonded plate with holes
Plate with fluidic structures

FIGURE 8